

WHAT IS CLAIMED IS:

1. An ultrasonic medical treatment device comprising:
 - a casing;
 - an elongate probe mounted to and extending from said casing, said probe having an axis and a free end serving as an operative tip;
 - a transducer assembly mounted to said casing and operatively connected to said probe for generating vibrations of at least one ultrasonic frequency in said probe;
 - a sheath surrounding said probe; and
 - at least one electrode member attached to said sheath, said electrode member being connectable to an RF voltage source.
2. The medical treatment device defined in claim 1 wherein said sheath is movably mounted to said casing for reciprocable motion along said axis of said probe, whereby said tip of said probe may be alternately covered and exposed.
3. The medical treatment device defined in claim 2 wherein said electrode member is fixed to said sheath.
4. The medical treatment device defined in claim 3 wherein said electrode member is substantially embedded in said sheath and has an exposed tip proximate to said operative tip of said probe.
5. The medical treatment device defined in claim 4 wherein said electrode member is one of exactly two electrode members both fixed to said sheath.

6. The medical treatment device defined in claim 4 wherein said electrode member is one in a plurality of pairs of electrode members all fixed to said sheath.

7. The medical treatment device defined in claim 2 wherein said electrode member is one of at least two electrode members, at least one of said electrode members being hingedly secured to said sheath, further comprising at least one actuator operatively connected to said one of said electrode members for pivoting said one of said electrode members towards the other of said electrode members.

8. The medical treatment device defined in claim 7 wherein said sheath is formed with a plurality of pairs of parallel slots defining respective hinged fingers, said electrode members being mounted to respective ones of said hinged fingers.

9. The medical treatment device defined in claim 8 wherein said electrode members are at least partially embedded in said fingers.

10. The medical treatment device defined in claim 7 wherein said actuator is a protuberance manually engageable to slide said sheath alternately in a proximal and a distal direction.

11. The medical treatment device defined in claim 7 where the other of said electrode members is said probe.

12. The medical treatment device defined in claim 1 wherein said electrode member is mounted to said sheath so as to be movable relative to said probe.

13. The medical treatment device defined in claim 12 wherein said electrode member is movable in parallel to said axis.

14. The medical treatment device defined in claim 1 wherein said electrode member is fixed to said sheath.

15. The medical treatment device defined in claim 1 wherein said electrode member is substantially embedded in said sheath and has an exposed tip proximate to said operative tip of said probe.

16. The medical treatment device defined in claim 1 wherein said probe is also an electrode operative with said electrode member to perform bipolar electrocautery.

17. The medical treatment device defined in claim 1 wherein said electrode member is a monopolar electrode member connectable to an RF power supply for the performance of monopolar electrocautery.

18. An ultrasonic medical treatment device comprising:
a casing;
an elongate probe mounted to and extending from said casing, said probe having an axis and a free end serving as an operative tip;

a transducer assembly mounted to said casing and operatively connected to said probe for generating vibrations of at least one ultrasonic frequency in said probe;

a sheath surrounding said probe; and

at least one electrode member connectable to an RF voltage source, said electrode member being mounted at least indirectly to said casing so as to permit relative motion between said electrode member and said probe.

19. The medical treatment device defined in claim 18, further comprising means mounting said electrode member to said casing so as to permit relative motion between said electrode member and said probe.

20. The medical treatment device defined in claim 19 wherein said means mounting said electrode member to said casing includes said sheath, said sheath being movably mounted to said casing for reciprocable motion along said axis of said probe, whereby said tip of said probe may be alternately covered and exposed.

21. The medical treatment device defined in claim 20 wherein said electrode member is mounted to said sheath so as to permit a transverse motion of a distal end of said electrode member relative to said probe, thereby permitting an adjustment in the distance between the distal end of said electrode member and an axis of said probe.

22. The medical treatment device defined in claim 21 wherein said electrode member is hingedly secured to said sheath, further comprising at least one actuator operatively connected to said electrode member for pivoting said electrode member towards an axis of said probe.

23. The medical treatment device defined in claim 22 wherein said sheath is formed with a at least one pair of parallel slots defining a hinged finger, said electrode member being mounted to said hinged finger.

24. The medical treatment device defined in claim 23 wherein said electrode member is at least partially embedded in said finger.

25. The medical treatment device defined in claim 22 wherein said actuator is a protuberance manually engageable to slide said sheath alternately in a proximal and a distal direction.

26. The medical treatment device defined in claim 20 wherein said electrode member is substantially embedded in said sheath and has an exposed tip proximate to said operative tip of said probe.

27. The medical treatment device defined in claim 18 wherein said probe is also an electrode operative with said electrode member to perform bipolar electrocautery.

28. The medical treatment device defined in claim 18 wherein said electrode member is a monopolar electrode member connectable to an RF power supply for the performance of monopolar electrocautery.

29. A method for conducting a medical surgical procedure, comprising: providing an ultrasonic medical treatment device having a casing and an elongate probe mounted to and extending from said casing, said probe having an axis and a free end serving as an operative tip, a transducer assembly mounted to said casing being operatively connected to said probe, at least one electrode member being mounted at least indirectly to said casing;

inserting a distal end portion of said probe into a patient;

thereafter energizing said transducer assembly to generate a standing wave in said probe, said standing wave having a wavelength corresponding to an ultrasonic frequency;

during the energizing of said transducer assembly, ablating tissues of the patient at said operative tip of said probe;

moving said electrode member relative to said probe;

connecting said electrode member to an RF voltage source; and

thereafter cauterizing tissues in the patient owing to the conduction of current between exposed portions of said electrode members.

30. The method defined in claim 29 wherein said electrode member is attached to said sheath, the moving of said electrode member including moving said sheath relative to said probe.

31. The method defined in claim 30 wherein the moving of said electrode member includes translating said sheath in parallel to said probe.

32. The method defined in claim 30 wherein the moving of said electrode member includes moving said electrode member in a transverse direction relative to said probe, thereby

changing a distance between an exposed portion of said electrode member and an axis of said probe.

33. The method defined in claim 29, further comprising using said electrode member to ablate tissues of the patient.